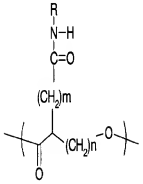
C. Remarks

The claims are 1-11, with claims 1, 3, 4 and 6-11 being independent. All claims have been amended solely to improve their form to address the formal issues raised by the Examiner in the Office Action. No new matter has been added. Reconsideration of the present claims is expressly requested.

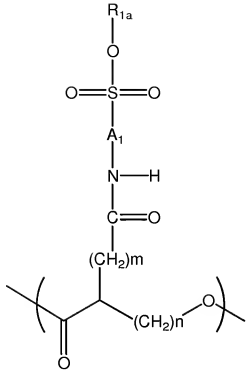
Claims 1-11 stand rejected under 35 U.S.C. § 112, second paragraph, as being allegedly indefinite. Specifically, the Examiner alleged that subscripts for R_1, R_{1a}, and OR_{1a}, i.e., "1a," have not been properly defined and do not exist in the structural formula. Also, the Examiner alleged that the intended meaning of "when multiple units exist" is not clear. Further, the Examiner alleged that it is not clear whether the claimed formula remains within the scope intended in the specification when m is 0.

Claim 1 in the present case recites a polyhydroxyalkanoate that includes one or more units represented by chemical formula (1) in a molecule:



(1)

In this formula, R is $-A_1-SO_2R_1$. R_1 in $-A_1-SO_2R_1$ may be OR_{1a}. Therefore, the polyhydroxyalkanoate in accordance with the present invention can include the following unit:



Thus, R_{1a} may be in structural formula (1). Furthermore, R_{1a} is defined in claim 1 as being a substituted or unsubstituted aliphatic hydrocarbon structure, a substituted or unsubstituted aromatic ring structure, or a substituted or unsubstituted heterocyclic structure. Therefore, R_{1a} as recited in claim 1 may be in structural formula (1) and is specifically defined. In the claims, "1a" is a designation of a specific substituent, like "5" is a designation in substituent R_5 in formula (5) of claim 3.

With respect to the issue of multiple units, the claims have been amended to clarify that this is a reference to a PHA or a reactant including more than one unit of a specific chemical formula being described.

With respect to the issue of m being 0, the claims have been amended to exclude the structures where m is 0.

With respect to claims 6-11, the Examiner alleged that these claims do not recite all required synthesis steps. In particular, the Examiner referred to reaction conditions, stating that the specification provides only certain parameters, conditions or amounts and there is no indication that the invention can be practiced outside these parameters, conditions or amounts.

Applicants respectfully submit that all the required synthesis steps are disclosed. The specification provides details as to how the invention can be practiced, as demonstrated by the Examples. The meets and bounds of the methods claims are identified in the claimed synthesis steps. There is no requirement to set forth all reaction conditions in a claim, provided that a skilled artisan can practice the claimed invention based on the disclosure in the specification. The Examiner has not identified any reasons as to why one skilled in the art would not be able to perform the claimed steps, determine the reaction parameters, conditions and amounts based on the disclosure in the specification and the knowledge in the art, or to understand when such steps are being performed to determine whether the claim is infringed (i.e., identify what subject matter is being precluded by a claim). In fact, catalytic polymerization, oxidation, hydrolysis, hydrogenolysis and a reaction with a base as recited in the claims are well-known types of synthesis steps, which should not require undue experimentation for skilled artisans.

Thus, in view of the above discussion, withdrawal of the outstanding section 112 rejection is respectfully requested.

Claims 1-5 stand rejected under 35 U.S.C. § 103(a) as being allegedly obvious from U.S. Patent No. 6,083,729 (Martin). The grounds of rejection are respectfully traversed.

The presently claimed invention, in pertinent part, is related to polyhydroxyalkanoates (PHAs) including specific units. Martin is related to methods of separating PHAs from plants, such as transgenic oil corn. The Examiner has alleged that Applicants did not distinguish the claimed structures from those in Martin, because the arguments presented in the Amendment filed June 24, 2008 focused on how the PHA was obtained and not on the structure of the PHA. Applicants respectfully disagree with the Examiner for the following reasons.

The arguments presented in the June 24, 2008 Amendment asserted and explained that Martin does not disclose or suggest a PHA in which a side chain has the structures as presently claimed. The reference to the process of producing the PHA in Martin in connection with claims 1-5 was made solely because the Examiner previously alleged that the claimed structures are obvious since they are prepared from the same components as those in Martin, with the exception of a particular inclusion of the sulfur unit. Thus, Applicants stated that since the premise on which the Examiner based the rejection is not accurate, the rejection cannot be maintained.

Martin teaches that a side chain in the PHA may include hydrocarbon radicals, halo- and hydroxy-substituted radicals, hydroxy radicals, halogen radicals, nitrogen-substituted radicals, oxygen-substituted radicals and hydrogen atoms (col. 3, lines 62-67). In addition, Martin mentions that "[t]he PHA polymers also may contain or be modified to include other non-hydroxy acid units such as long chain fatty acids, amino acids, carbohydrates, phosphorus and sulfur containing compounds, and triols, such as glycerol." (col. 4, lines 35-38).

Applicants respectfully submit, however, that this is not a disclosure of "a finite number of identified, predictable" choices. *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1742 (2007). In fact, Applicants submit that this list encompasses thousands of possible side chains, which are not within the general scope of the present claims. There is not one iota of disclosure that would even suggest to a skilled artisan to modify the isolated PHA to have the claimed structures. Even if Martin only referred to a nitrogen-substituted and sulfur-containing compound, this is by far not sufficient to render a $(CH_2)_m$–C(O)–NH–A_1–SO_2R_1 group obvious.

The Federal Circuit has recently reiterated that "in cases involving new chemical compounds, it remains necessary to identify some reason that would have led a chemist to modify a known compound in a particular manner to establish prima facie obviousness of a new claimed compound." *Takeda Chem. Indus. v. Alphapharm Pty., Ltd.*, 492 F.3d 1350, 1357 (Fed. Cir. 2007). *KSR* presumes that the record before the time of invention would supply some reasons for narrowing the prior art universe to a "finite number of identified, predictable solutions," *KSR Int'l Co. v. Teleflex Inc.* at 127 S. Ct. at 1742. Since chemical and biotech arts are often unpredictable, *KSR*'s focus on these "identified, predictable solutions" may present a difficult hurdle because potential solutions or choices are less likely to be genuinely predictable. *Eisai Co. Ltd. v. Dr. Reddy's Laboratories, Ltd.*, 03-CV-9053 and 03-CV-9223 (Fed. Cir. 2008).

The thousands of possible modifications generally referred to in Martin are not a "small and finite number of alternatives [that] might support an inference of obviousness." *Ortho-McNeil Pharmaceutical, Inc. v. Mylan Laboratories, Inc.*, 520 F.3d 1358, 1364 (Fed. Cir. 2008). The Examiner bears the burden of showing that the

disclosure in Martin meets the requirement of providing a "small and finite number of alternatives." Applicants respectfully submit that a general reference to thousands of compounds is not sufficient to render the present claims prima facie obvious as a matter of law. Thus, Martin cannot affect the patentability of the claimed PHAs.

Wherefore, withdrawal of the outstanding rejections and passage of the application to issue are respectfully requested.

Applicants' undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

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